

SQL Query

Interview Questions

1. What is a cross join?

Ans. A cross join is a join that gives the Cartesian product of all the rows from both the tables in the join. In other words, each row from the first table and each row from the second table are combined. For example - If table 1 is -

Letters

A

B

C

And table 2 is -

Numbers

1

2

3

The cross join of both these tables will give us -

Letters Numbers

A 1

A 2

A 3

B 1

B 2

B 3

C 1

C 2

C 3

2. Which command is used to remove duplicates from the result-set obtained by the second SELECT query from the result-set obtained by the first SELECT query and then return the filtered results from the first?

Ans. The distinct command is used to remove duplicates.

3. What is a cursor?

Ans. The rows (one or more) that a SQL statement returns are stored in a cursor. You can give a cursor a name so that a program can use it to retrieve and handle the rows returned by the SQL statement one at a time. Two different types of cursors exist - Implicit cursors and Explicit cursors.

4. How do the clustered and non-clustered indexes differ in SQL?

Ans. An index aids in enhancing both overall performance and speed of data retrieval. If the primary key and unique constraint are defined on the table, the index is automatically constructed. Clustered and non-clustered indexes are two different types of indexes.

A clustered index on a column is automatically created in SQL Server by the primary key constraint. There can only be one clustered index per table, as specified by the protocol. A clustered index is used, much like a dictionary, to define the order, sort the table, or organize the data in alphabetical order.

A non-clustered index records data in a different location than where it is collected. Pointers to the location of that data are contained in the index. There can be multiple non-clustered indexes on a table, as specified by the protocol. It does not impact the order of the data stored in the table.

Further, no extra space is required to store the logical structure of a clustered index whereas extra space is required to store the logical structure of an unclustered index.

If data retrieval is your priority then clustered index works best whereas if updating data is your priority then non-clustered indexes work best.

5. What is a view? How is it different from a table?

Ans. A view is nothing but a virtual table. The rows and columns in a view are similar to those in a table. A view is a database object that is built on top of another table (or view), as opposed to a table, which holds data on its own. If data in the underlying table changes, the display will also reflect those changes. A view may be constructed on top of one or more tables. A view can also be defined on top of a different view.

6. Explain the different forms of normalization. What is the use of normalization?

Ans. Redundancy from a relation or group of relations is minimized through the process of normalization. Insertion, deletion, and update abnormalities could result from relational redundancy. Redundancy in database tables can be reduced with the help of normal forms. The different forms of normalization are explained as follows -

a. First Normal Form – A relation violates the first normal form if it has composite or multi-valued attributes, or it is in the first normal form if neither of these attributes is present. If all of the attributes in a relation are single valued attributes, the connection is said to be in the first normal form.

b. Second Normal Form – A relation must be in the first normal form and be devoid of any partial dependencies in order to be in the second normal form. If a relation has No Partial Dependency, which means that no non-prime attribute—i.e., an attribute that is not included in any candidate key—is dependent on any suitable subset of any candidate key in the table, then the relation is in 2NF.

c. Third Normal Form – A relation is in the third normal form if it is both in the second normal form and there is no transitive dependency for non-prime characteristics. If at least one of the

following applies to every non-trivial function dependence $X \rightarrow Y$, a relation is in 3NF - Super key X is used or the prime attribute is Y.

d. Boyce-Codd Normal Form (BCNF) – If a relation R is in Third Normal Form for every FD, it is said to be in BCNF. The LHS acts as the super key. A relation is in the BCNF if X is a super key in every non-trivial functional dependency $X \rightarrow Y$

7. Explain how TRUNCATE, DELETE and DROP statements differ from one another

Ans.

- TRUNCATE in SQL is a DDL command. It is used to eliminate every record from a table. An existing table's records are deleted, but the table itself is left intact. The table's schema or structure is maintained. As a DDL command, the TRUNCATE TABLE statement cannot be undone i.e. it cannot be rolled back.
- DELETE in SQL is a DML command. It is used to remove current records from a table that already exists. Depending on the query's criterion, we can delete a single record or a number of records. Since DELETE is a DML command, it can be undone i.e. it can be rolled back.
- DROP is a DDL Command. Existing database objects can be deleted using the DROP statement. You can use it to remove databases, tables, views, triggers, and other objects. The deletion of an object with the DROP command cannot be undone i.e. rolled back and is irreversible.
- Prior to deletion, the DELETE statement checks every row. As a result, it takes longer than the TRUNCATE command. Using TRUNCATE instead of DELETE when deleting all the records from a table is recommended because it is quicker. The DROP command eliminates the entire schema/structure of the table from the

database, in contrast, to TRUNCATE which simply deletes the data of the tables.

8. What are Scalar functions?

Ans. There are some built-in functions in SQL that are known as scalar functions, and no matter what input is passed to a scalar function, it will always return a single value as its output. In SQL, the scalar functions treat each record separately. Scalar functions are often used and include the following: UCASE(), LCASE(), MID(), LENGTH(), ROUND(), NOW(), FORMAT()

9. What are aggregate functions in SQL?

Ans. A column's multiple values are calculated by an aggregate function in SQL, which in turn produces a single value. The GROUP BY and HAVING clauses in a SELECT statement frequently go hand in hand with aggregate functions. Avg, count, sum, min, max, and many other aggregate methods are available in SQL. With the exception of the count function, an aggregate function does not take into account NULL values while calculating results.

10. What are OLAP and OLTP?

Ans. Data analysis for business choices is done using a class of software tools known as online analytical processing (OLAP). OLAP offers a setting where users can simultaneously access insights from the database gathered from several database systems. Examples: An OLAP system is any type of data warehousing system. In a three-tier design, online transaction processing (OLTP) offers transaction-oriented applications. The daily operations of an organization are managed by OLTP. The use of OLTP is possible for online banking, sending text messages, and adding clothes to shopping carts.

11. What do we use for pattern matching in SQL?

Ans. We use wildcard characters for pattern matching in SQL.

12. Explain triggers in SQL

Ans. A trigger is a specific kind of stored procedure that launches automatically whenever a database server event takes place. When a user attempts to edit data using a data manipulation language (DML) event, DML triggers are activated. DML operations are statements that INSERT, UPDATE, or DELETE data from a table or view. Whether or whether table rows are affected, these triggers are triggered whenever a legitimate event occurs.

13. Is a NULL value equivalent to a blank space or zero?

Ans. No, a NULL value is not equivalent to a black space or zero. Any value that is "unavailable, unassigned, unknown, or not applicable" is referred to as a NULL value. Whereas, a blank space is a character and zero is a number.

14. What is the use of the COALESCE function?

Ans. The COALESCE function is used to return the very first value from a series that is NOT NULL. It evaluates the expressions in the order and returns the first value which is not null.

15. Explain the difference between where and having clauses?

Ans. Similar to a WHERE clause, a HAVING clause only applies to groups as a whole (i.e., to the rows in the result set that represent groups), but a WHERE clause applies to specific rows. Both a WHERE clause and a HAVING clause may be present in a query. If so, then -

- Individual rows in the tables are the first to get the WHERE clause's application. The rows that meet the WHERE clause's criteria are grouped together as a result set.

- The rows in the result set are then subjected to the HAVING clause. The query output only contains the groups that satisfy the HAVING requirements.

16. Explain character manipulation functions in SQL

Ans. A function that accepts one or more characters or numbers as input and outputs a character value is known as a character manipulation function. A string value is returned as a result set from basic string functions, which have a number of features. Here are the SQL character functions:

- To lowercase all the characters in a string, use the SQL LOWER() method.
- Using the SQL UPPER() method, all characters in a string are changed to uppercase.
- The SQL TRIM() function eliminates leading and trailing characters from character strings, or both.
- The SQL TRANSLATE() method swaps out one string's set of characters for another string. A single character is replaced at a time using the function.

17. How can we display the current date in SQL?

Query- SELECT GETDATE();

18. How can we display alternate records from a table?

Query- SELECT * FROM table_name WHERE column_name%2 = 1;

19. How can you find the second highest salary from the given employee table?

Query- SELECT MAX(emp_salary) FROM Employee WHERE SALARY < (SELECT MAX(emp_salary) FROM Employee);



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20. How can we copy the entire data from one table to another in SQL?

Query- `INSERT INTO new_table SELECT * FROM old_table;`

SQL Query

Interview Questions

1. How can we create an empty table with the same structure as another table?

Query- CREATE TABLE new_table LIKE oldl_table;

2. What can be used to add a row in a database using SQL?

ADD

AUGMENT

INSERT

CREATE

Ans: C

3. What command will you use to remove rows from a table 'AGE'?

REMOVE FROM AGE

DROP FROM AGE

DELETE FROM AGE WHERE

UPDATE FROM AGE

Ans: C

4. What does the SQL WHERE clause do?

Limits the column data that are returned

Limits the row data that are returned

Both a and b

None of the above

Ans: B

5. What is the purpose of SQL?

To define data structures

To specify the syntax of DDL

To specify the syntax of DML

All of the above

Ans: D

6. The wildcard in a WHERE clause is used when _____

A right match is required in a SELECT statement

A right match is possible in a CREATE statement

A right match is not possible in a SELECT statement

None of the above

Ans: C

7. Define a view?

A virtual table that can be accessed with SQL commands

A base table that can be accessed with SQL commands

Both a and b

None of the above

Ans: a

8. What command will you use to eliminate a table from a database?

ELIMINATE TABLE CUSTOMER;

DROP TABLE CUSTOMER;

DELETE TABLE CUSTOMER;

APPRISE TABLE CUSTOMER;

Ans: b

9. What does an ON UPDATE CASCADE ensure?

- Standardization
- Data Integrity
- Both a and b
- None of the above

Ans: B

10. What does SQL data definition commands make up?

- DDL
- DML
- DQL
- DCL

Ans: A

11. Choose the valid SQL for an Index?

- CREATE INDEX ID;
- ALTER INDEX ID;
- ADD INDEX ID;
- DELETE INDEX ID;

Ans: A

12. Which SQL keyword(s) is used with wildcards?

- IN and NOT IN
- NOT IN only
- LIKE only
- IN only

Ans: C

13. Choose the correct order of keywords for SQL SELECT statements

- WHERE, SELECT, FROM
- SELECT, FROM, WHERE
- SELECT, WHERE, FROM
- FROM, WHERE, SELECT

Ans: b

14. What is a subquery in an SQL SELECT statement enclosed in?

- brackets []
- braces {}
- parenthesis ()
- none of the above

Ans: C

15. What is the result of a SQL SELECT statement?

- report
- form
- table
- file

Ans: c

SQL Query

Interview Questions



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Q1. What is MySQL?

MySQL is a Relational Database Management System (RDMS) such as SQL Server, Informix, etc., and uses SQL as the standard database language. It is open-source software backed by Oracle and used to deploy cloud-native applications using an opensource database.

Q2. What is a Database?

It is the structured form of data stored in a well-organized manner that can be accessed and manipulated in different ways. The database is based on the collection of schemas, tables, queries, and views. In order to interact with the database, different database management systems are used. MySQL is used in WordPress and gives you the option to create a MySQL database and its User with the help of a control panel (cPanel).

Q3. Can you explain tables and fields?

The table is the set of organized data stored in columns and rows. Each database table has a specified number of columns known as fields and several rows which are called records. For example:

Table: Student

Field: Std ID, Std Name, Date of Birth

Data: 23012, William, 10/11/1989

Q4. What is the primary key?

The primary key is the combination of fields based on implicit NOT NULL constraint that is used to specify a row uniquely. A table can have only one primary key that can never be the NULL.



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Q5. What is a unique key?

The unique key is the group of one or more fields or columns that uniquely identifies the database record. The unique key is the same as a primary key but it accepts the null value.

Q6. What is a foreign key?

The foreign key is used to link two tables together and it is a field that refers to the primary key of another table.

Q7. What is a join?

As the name indicates, join is the name of combining columns from one or several tables by using common values to each. Whenever the joins are used, the keys play a vital role.

Q8. What is normalization?

Normalization is the process of organizing fields into a related table for increasing integrity and removing redundancy in order to improve the performance of the query. The main aim of the normalization is to add, delete, or modify the fields that can be made in a single table.

Q9. What is Denormalization.

It is a technique in which data from higher to lower normal forms accessed and it also used to add redundant data to one or more tables.



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Q10. What are the types of join and explain each?

Depending on the relationship between tables, join has the following types:

Inner Join

It returns rows when there is at least one match of rows between the tables.

Right Join

It returns the common rows between the tables and all rows of the Right-hand side table. In other words, it returns all the rows from the right-hand side table even there is no matches in the left-hand side table.

Left Join

It returns the common rows between the tables and all rows of the left-hand side table. In other words, it returns all the rows from the left-hand side table even there are no matches in the right-hand side table.

Full Join

As the name indicates, full join returns rows when there are matching rows in any one of the tables. It combines the results of both left and right table records and it can return very large result-sets.

Q11. What is a View?

The view is a virtual table that consists of the subset of data contained in a table and takes less space to store. It can have data from multiple tables depending on the relationship.

Q12. What is an Index?

The index is the method of creating an entry for each value in order to retrieve the records from the table faster. It is a valuable performance tuning method used for faster retrievals.



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Q13. What are all the different normalizations?

Following are the different normalization forms:

First Normal Form (1NF):

It is the process of removing all the duplicate columns from the table and ensuring that each cell contains only one piece of information. In the first normal form, there are only atomic values without any repeating groups.

Second Normal Form (2NF):

A relation is in 2NF if it satisfies the first normal form and does not contain any partial dependency. Moreover, make sure the non-key attributes are fully functional dependent on the primary key.

Third Normal Form (3NF):

Remove the columns that are not dependent on primary key constraints and make sure it meets all the requirements of the second normal form.

Fourth Normal Form (4NF):

It should not have multi-valued dependencies and meet all the requirements of the third normal form.

It depends on the interviewers they can only ask a single form of normalization or all in their SQL interview questions.

Q14. What is a Cursor?

Cursor is known as the control of the database that enables traversal over the rows in the table. It is very useful tool for different operations such as retrieval, addition, and removal of database records. You can view the cursor as a pointer to one row in a set of rows.



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Q15. What are all the different types of indexes?

There are three types of indexes:

Unique Index

The unique index ensures the index key column has unique values and it applies automatically if the primary key is defined. In case, the unique index has multiple columns then the combination of values in these columns should be unique.

Clustered Index

Clustered index reorders the physical order of a table and searches based on its key values. Keep in mind, each table can have only one clustered index.

Non-Clustered Index

Non-Clustered Index does not alter the physical order but maintains a logical order of table data. Each table in the non-clustered index can have 999 indexes.

Q16. What is a database relationship and what are they?

The database relationship is the connection between the tables of any particular database. Following are the main types of relationships:

One to One Relationship

One to Many Relationship

Many to One Relationship

Self-Referencing Relationship



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Q17. What is a query?

The database query is the name of getting information back from the database with the help of coding. We can get expected results from the database without wasting our valuable time because the query gives us output within a short-time period.

Q18. What is subquery?

As the name indicates, it is also a query but used in another query. The outer query is known as the main query and the inner query is called a subquery. The subquery will be executed first and pass the results to the main query then the output of both queries will be displayed.

Q19. Enlist the name of different subsets of SQL?

There are four subsets of SQL:

DDL (Data Definition Language)

DML (Data Manipulation Language)

DCL (Data Control Language)

TCL (Transaction Control Language)

Q20. Explain DDL with its examples?

As the name indicates, Data Definition Language (DDL) is used to define the structure of data, table, schema, and modify it. For example:

CREATE: is used to create tables, databases, schema, etc.

DROP: is used to drop/remove tables and other database objects.

ALTER: is used to alter or change the definition of database objects.

TRUNCATE: is used to remove tables, procedures, and other database objects.

ADD COLUMN: is used to add any column to table schema.

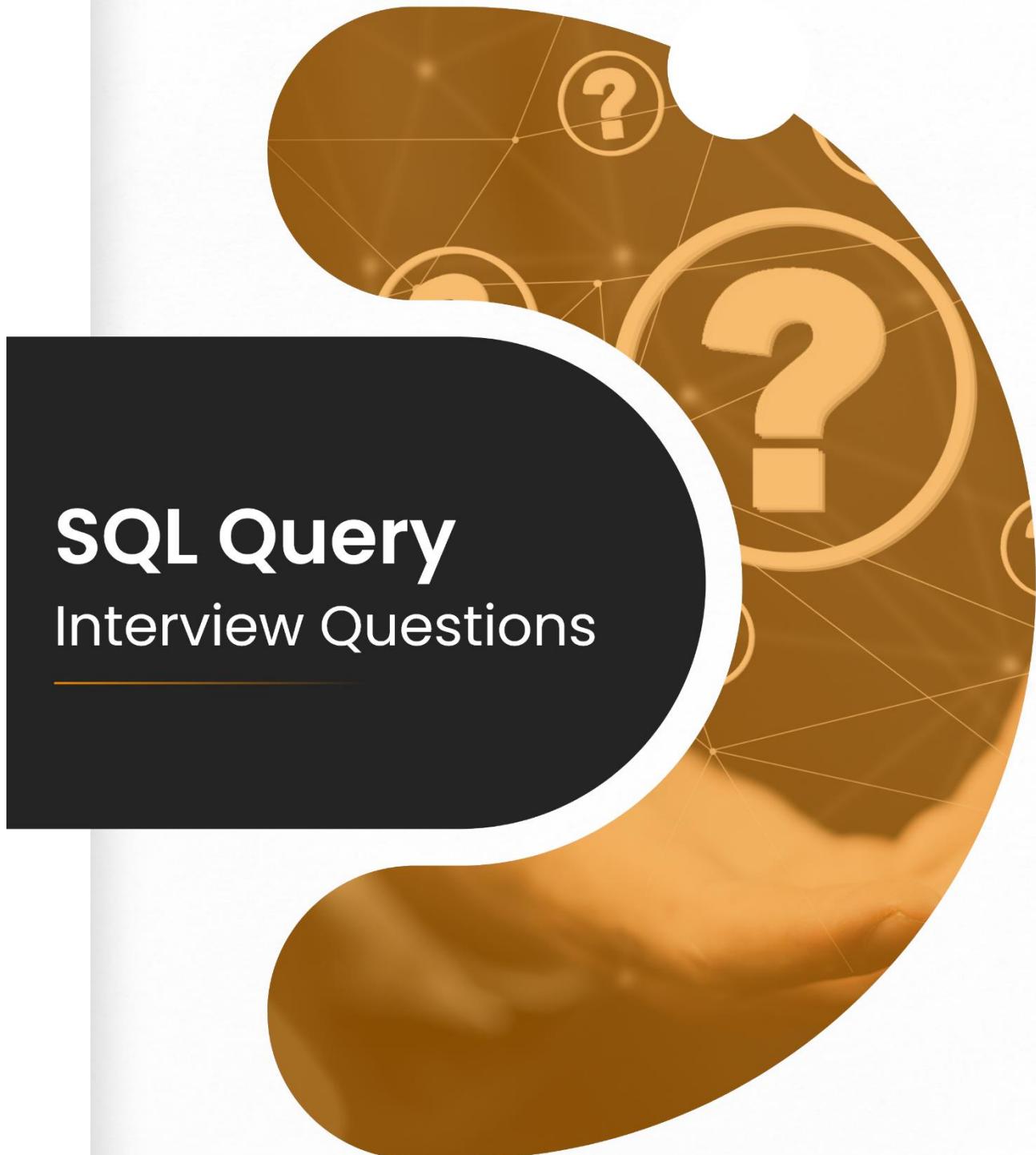
DROP COLUMN: is used to drop a column from any database table

structure

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Interview Questions





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Q1. Explain DML with its examples?

DML (Data Manipulation Language) is a computer programming language used for the addition (insertion), deletion and modification of data in the database. For example:

SELECT INTO: is used to select data from one table and insert into another table.

INSERT: is used to insert data or records into a table.

DELETE: is used to delete records from any database table.

UPDATE: is used to update the values of different records in the database

Q2. Explain TCL with its examples?

TCL (Transaction Control Language) is a set of commands used to perform a specific task on objects in a single unit of execution. In simple words, TCL commands deal with transactions in a database. For example:

COMMIT: is used to commit transactions. Once a commit is made it cannot be rolled back, so the previous image of the database cannot be retrieved before running this transaction.

ROLLBACK: is used to revert the steps in transactions if an error arises.

SAVEPOINT: is used to set the savepoint in the transaction to which steps can be rolled back.

SET TRANSACTION: is used to set characteristics of the transaction.

Q3. Write a SQL query to display the current date?

Following SQL query is used to return the database system date and time:

SELECT GETDATE();

This type of short queries are asked in the SQL interview questions so that they can understand about the candidate's knowledge and hands-on experience.



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Q4. What is a stored procedure?

It is a subroutine available to applications that need to access a relational database management system (RDBMS). These procedures are stored in the data dictionary and only executed in the database which is considered a big disadvantage because it occupies more memory in the database server. Moreover, it provides security and functionality to those users who are unable to access data directly, so they can be granted access via stored procedures.

Q5. What is a trigger?

A database trigger is a code or program that helps to maintain the integrity of the database. It automatically executes the response to particular events on a table in the database.

For example, when a new employee is added to the employee database, new records should be created in the related tables like Salary, Attendance, and Bonus tables.

Q6. What is the difference between DELETE and TRUNCATE commands?

TRUNCATE command removes all the table rows permanently that can never be rolled back. DELETE command is also used to remove the rows from the table but commit and rollback can be performed after the deletion. Moreover, the WHERE clause is also used as conditional parameters.

Q7. What is the main difference between local and global variables?

As the name indicates, the local variables can be used inside the function but global ones are used throughout the program. Local variables are only limited to the function and cannot be referred or used with other functions.



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Q8. What is the main difference between local and global variables?

As the name indicates, the local variables can be used inside the function but global ones are used throughout the program. Local variables are only limited to the function and cannot be referred or used with other functions.

Q9. What is a constraint and what are the common SQL constraints?

SQL constraint is used to specify the rules for data in a table and can be specified while creating or altering the table statement.

The following are the most widely used constraints:

NOT NULL
CHECK
DEFAULT
UNIQUE
PRIMARY KEY
FOREIGN KEY

Q10. What is Data Integrity?

Data integrity is the overall accuracy, completeness, and consistency of data stored in a database. For example, in order to maintain data integrity, the numeric columns/fields should not accept alphabetic data.

Q11. What is Auto Increment?

Auto increment allows the users to create a unique number to be generated whenever a new record is inserted into the table. It helps to keep the primary key unique for each row or record. If you are using Oracle then AUTO INCREMENT keyword should be used otherwise use the IDENTITY keyword in the case of the SQL Server.



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Q12. What is the difference between the Cluster and Non-Cluster Index?

The clustered index defines the order in which data is physically stored in a database table and used for easy retrieval by altering the way that the records are stored.

The non-clustered index improves the speed of data retrieval from database tables but stores data separately from the data rows. It makes a copy of selected columns of data with the links to the associated table.

Q13. What is Datawarehouse?

It is the name of a central repository of data from multiple information sources for analytics and business intelligence activities. Datawarehouse has an enterprise-wide depth and based on its subsets called data marts which are oriented to a specific business line or team.

Q14. What is Self-Join?

A self-join SQL query is used to compare to itself and values in a column are compared with other values in the same column in the same database table

Q15. What is Cross-Join?

Cross-join is used to generate a paired combination of each row of table A with each row of table B. If the WHERE clause is used in cross join then the SQL query will work like an INNER JOIN.

Q16. What is user-defined functions?

Like functions in programming languages, SQL user-defined functions are routines or functions that accept parameters, perform an action, such as a complex calculation, and return the output of that particular action as a value. There is no need to write the same logic several times because the function can be called whenever needed.



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Q17. What are all types of user-defined functions?

Following are the user-defined functions:

Scalar Functions that return the unit or single-valued results

Inline Table-valued functions that return table as a return

Multi statement valued functions that return table as a return

Q18. What is collation?

Collation provides a set of rules that determine how character data can be sorted and compared in a database. It also provides the case and accent sensitivity properties. Collation is used to compare A and other language characters with the help of ASCII value.

Q19. What are all different types of collation sensitivity?

Following are the different types of collation sensitivity:

Case Sensitivity (A & a, B & b or any other uppercase and lowercase letters)

Accent Sensitivity

Kana Sensitivity (Japanese Kana characters)

Width Sensitivity (Single byte character (half-width) & same character represented as a double-byte character)

Q20. What are the pros and cons of Stored Procedure?

The stored procedure is based on modular programming that means create once, store and call several times whenever you need it. It supports faster execution and reduces the network traffic for optimum performance.

The main disadvantage of stored procedure is that it executed only in the database and utilized more memory.

SQL Query

Interview Questions



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Q1. What are the pros and cons of Stored Procedure?

The stored procedure is based on modular programming that means create once, store and call several times whenever you need it. It supports faster execution and reduces the network traffic for optimum performance. The main disadvantage of stored procedure is that it executed only in the database and utilized more memory.

Q2. What is Online Transaction Processing (OLTP)?

As the name indicates, Online Transaction Processing (OLTP) is used to manage transaction-based applications that can be used for data entry, retrieval, and processing. It makes data management simple and efficient that is the reason why bank transactions are using OLTP. You can view an insight into the working of an OLTP system.

Q3. Define COMMIT.

COMMIT command is used to save all the transactions to the database since the last COMMIT or ROLLBACK command where a transaction is a unit of work performed against any database.

Here is the syntax of COMMIT command:

COMMIT;

Consider an example of the deletion of those records which have age = 25 and then COMMIT the changes in the database.

SQL> DELETE FROM CUSTOMERS

WHERE AGE = 25;

SQL> COMMIT;



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Q4. What is CLAUSE?

SQL clause is used to filter some rows from the whole set of records with the help of different conditional statements. For example, WHERE and HAVING conditions.

Q5. What is the difference between null, zero and blank space?

Null is neither same as zero nor blank space because it represents a value that is unavailable, unknown, or not applicable at the moment. Whereas zero is a number and blank space belongs to characters.

Q6. What is a recursive stored procedure?

It is the same as stored procedures but it calls by itself until it reaches any boundary condition. So, it is the main reason why programmers use recursive stored procedures to repeat their code any number of times.

Q7. What is Union, minus and Intersect commands?

Union operator is used to combining the results of two tables and removes the duplicate rows. Minus is used to return matching records of the first and second queries and other rows from the first query but not by the second one. The Intersect operator is used to return the common rows returned by the two select statements.

Q8. What is an ALIAS command?

ALIAS name can be given to a column or table and referred in WHERE clause to identify the column or table. Alias column syntax:

`SELECT column_name AS alias_name`

`FROM table_name;`



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Q9. What are aggregate and scalar functions?

The aggregate function performs mathematical calculations against a collection of values and returns a single summarizing value. The scalar function returns a single value based on the input value.

10. How can you create an empty table from an existing table?

With the help of the following command, we can create an empty table from an existing table with the same structure with no rows copied:

Select * into copytable from student where 1=2

Q11. How to fetch common records from two tables?

Common records can be achieved by the following command:

Select studID from student INTERSECT Select StudID from Exam

Q12. How to fetch alternate records from a table?

Records can be fetched for both Odd and Even row numbers with the following commands:

For even numbers:

Select studentId from (Select rownum, studentId from student) where mod(rowno,2)=0

For odd numbers:

Select studentId from (Select rownum, studentId from student) where mod(rowno,2)=1



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Q13. How to select unique records from a table?

Apply the following SQL query to select unique records from any table:

Select DISTINCT StudentID, StudentName from Student

Q14. What is the command used to fetch first 4 characters of the string?

Following are the ways to fetch the first 4 characters of the string:

Select SUBSTRING(StudentName,1,4) as studentname from student

Select LEFT(Studentname,4) as studentname from student

Q15. What is a composite primary key?

The primary key that is created on more than one column is known as composite primary key.

Q16. Which operator is used in query for pattern matching?

LIKE operator is used for pattern matching.

% (percent sign) Matches zero or more characters and _ (Underscore) is used for matching exactly one character. For example:

Select * from Student where studentname like 'm%'

Select * from Student where studentname like 'meh_'

What do you mean by ROWID?

ROWID is an 18-character long pseudo column attached with each row of a database table.



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Q17. What are GROUP functions and give some examples?

Group functions are mathematical functions used to work on the set of rows and return one result per group. AVG, COUNT, SUM, VARIANCE, MAX, MIN are most commonly used Group functions.

Q18. What are Entities and Relationships?

The entity is the name of real-world objects either tangible or intangible and it is the key element of relational databases. For a database entity, workflow and tables are optional but properties are necessary. For example: In the database of any institute, students, professors, workers, departments and projects can be known as entities. Each entity has associated properties that offer it an identity.

The relationship is the name of links or relations between entities that have something to do with each other. For example, the employee table should be associated with the salary table in the company's database.

Q19. What are GROUP functions and give some examples?

Group functions are mathematical functions used to work on the set of rows and return one result per group. AVG, COUNT, SUM, VARIANCE, MAX, MIN are most commonly used Group functions.

Q20. What is the MERGE statement?

MERGE statement is used to combine insert, delete and update operations into one statement. It is also used to synchronize two tables and make the changes in one table based on values matched from another.

SQL Query

Interview Questions



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SQL (DESC & PRACTICAL) :

1. What is Database?

Ans. A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS).

2. What is SQL?

Ans. SQL is a structured query language. It is a standard language for accessing and manipulating databases.

3. What are SQL commands?

Ans. There are five types of SQL Commands-

DDL(Data Definition Language),

DML(Data Manipulation Language),

DQL(Data Query Language),

TCL(Transaction Control Language),

DCL(Data Control Language).

4. What is the use of UPDATE statement

Ans. UPDATE statement is used when we want to update or change any record. It must be used with WHERE clause if you want to change only one record otherwise it would update the whole record

5. What is primary key?

Ans. Primary key constraint uniquely identifies each record in a table. Primary keys must contain UNIQUE values, and cannot contain NULL values. A table can have only one primary key.



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6. Difference between primary key and foreign key?

Ans. A primary key is a unique identifier for each record in a table whereas a foreign key establishes a relationship between tables by referencing the primary key of another table.

7. Difference between primary and unique key?

Ans. a primary key is a key that uniquely identifies each record in a table but cannot store NULL values. In contrast, a unique key prevents duplicate values in a column and can store NULL values.

8. What is char () in sql?

Ans. char() is a datatype which stores character data in a fixed length field.

9. what is the difference between char() and varchar()

Ans. char() stores character of fixed length and the maximum length currently is 255 bytes whereas varchar() is used when the sizes of the column data entries vary considerably. varchar() columns can be up to 65,535 bytes.

10. What is the main difference between update and alter commands in sql?

Ans. The main difference between the two is that the ALTER command adds, deletes, modifies, renames the attributes of the relation, and the UPDATE command modifies the values of the records in the relations.

11. What are the main components of insert statement?

Ans. There are three main components to an insert statement:

- The name of the table into which to add the data
- The names of the columns in the table to be populated
- The values with which to populate the columns

12. Suppose you have a table named person how would you enter record in this table?

Ans.

```
mysql> INSERT INTO person
->   (person_id, fname, lname, eye_color, birth_date)
-> VALUES (null, 'William', 'Turner', 'BR', '1972-05-27');
Query OK, 1 row affected (0.22 sec)
```

13. What is the difference between group by and order by?

Ans. A GROUP BY statement sorts data by grouping it based on column(s) you specify in the query and is used with aggregate functions. An ORDER BY allows you to organize result sets alphabetically or numerically and in ascending or descending order.

14. what is the difference between drop, delete and truncate?

Ans. The DROP Command drops the complete table from the database.

The DELETE command deletes one or more existing records from the table in the database.

The TRUNCATE Command deletes all the rows from the existing table, leaving the row with the column names.

15. Suppose you have a table named language and you only want to retrieve name column from it how will you proceed.

Ans.

```
mysql> SELECT name
->   FROM language;
+-----+
| name |
+-----+
| English |
| Italian |
| Japanese |
| Mandarin |
| French |
| German |
+-----+
```

16. Write a query to retrieve unique values from the table flim_actor and sort it.

Ans.

```
mysql> SELECT DISTINCT actor_id FROM film_actor ORDER BY actor_id;
+-----+
| actor_id |
+-----+
|      1 |
|      2 |
|      3 |
|      4 |
|      5 |
|      6 |
|      7 |
|      8 |
|      9 |
|     10 |
...
|    192 |
|    193 |
|    194 |
|    195 |
|    196 |
|    197 |
|    198 |
|    199 |
|   200 |
+-----+
200 rows in set (0.01 sec)
```

17) how you would find all customers with the last name “Smith”:

Ans.

```
SELECT cust_id, fname
FROM individual
WHERE lname = 'Smith';
```



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18) What is the use of where clause.

Ans. The WHERE clause is used to filter records. It is used to extract only those records that fulfill a specified condition.

19) Difference between where and having clause?

Ans. The main difference between WHERE and HAVING clause is that the WHERE clause allows you to filter data from specific rows (individual rows) from a table based on certain conditions. Whereas the HAVING clause allows you to filter data from a group of rows in a query based on conditions involving aggregate values.

20) Write a query to create a virtual table.

Ans.

```
mysql> CREATE VIEW cust_vw AS
-> SELECT customer_id, first_name, last_name, active
-> FROM customer;
Query OK, 0 rows affected (0.12 sec)
```

SQL Query

Interview Questions



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1) why do we define alias in sql?

Ans. when multiple tables are joined in a single query, you need a way to identify which table you are referring to when you reference columns in the select, where, group by, having, and order by clauses. So, by defining alias we can refer to the table easily with a shortcut name.

2) Write a query to retrieve the records from film table whose rating is g and are available for more than 7.

Ans.

```
mysql> SELECT title  
-> FROM film  
-> WHERE rating = 'G' AND rental_duration >= 7;
```

3) What is the AND and OR commands?

Ans. The AND and OR operators are used to filter records based on more than one condition: The AND operator displays a record if all the conditions separated by AND are TRUE. The OR operator displays a record if any of the conditions separated by OR is TRUE.

4) What is the order of execution in sql?

Ans.

1. From
2. Where
3. Groupby
4. Having
5. Select
6. Order by
7. Limit

5) How can you use both AND & OR commands at the same time?

Ans. You should use parentheses to group conditions together. The next query specifies that only those films that are rated G and are available for 7 or more days, or are rated PG-13 and are available 3 or fewer days, be included in the result set:

```
mysql> SELECT title, rating, rental_duration
-> FROM film
-> WHERE (rating = 'G' AND rental_duration >= 7)
->     OR (rating = 'PG-13' AND rental_duration < 4);
```

6) Retrieve the actor ID, first name, and last name for all actors. Sort by last name and then by first name.

Ans.

- ```
Select actor_ID, first_name, last_name
from actors
order by last_name,first_name ;
```

7) Retrieve the actor ID, first name, and last name for all actors whose last name equals 'WILLIAMS' or 'DAVIS'.

Ans.

```
Select actor_ID, first_name, last_name
from actors
| WHERE last_name = 'WILLIAMS' OR last_name = 'DAVIS';
```



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8) Write a query against the rental table that returns the IDs of the customers who rented a film on July 5, 2005 (use the rental.rental\_date column, and you can use the date() function to ignore the time component). Include a single row for each distinct customer ID.

Ans.

```
Select distinct customer_id
from rental
WHERE date(rental_date) = '2005-07-05' ;
```

9) What is the use of NOT operator in sql?

Ans. NOT is a logical operator in SQL that you can put before any conditional statement to select rows for which that statement is false.

10) What is the use of between operator.

Ans. When you have both an upper and lower limit for your range, you may choose to use a single condition that utilizes the between operator rather than using two separate conditions.

11) Write a query where amount is in the range of 10 to 11.99.

Ans.

```
mysql> SELECT customer_id, payment_date, amount
-> FROM payment
-> WHERE amount BETWEEN 10.0 AND 11.99;
```



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12) Write a query where whose last name falls in between FA and FR:

Ans.

```
mysql> SELECT last_name, first_name
-> FROM customer
-> WHERE last_name BETWEEN 'FA' AND 'FR';
```

13) What is the use of IN operator.

Ans. With the in operator, you can write a single condition no matter how many expressions are in the set.

14) What are tables and fields?

Ans. In a table, there are rows and columns, with rows referred to as records and columns referred to as fields.

15) Write a query for retrieving all the customers whose last\_name starts with 'Q' or 'Y'

Ans.

```
mysql> SELECT last_name, first_name
-> FROM customer
-> WHERE last_name LIKE 'Q%' OR last_name LIKE 'Y%';
+-----+-----+
| last_name | first_name |
+-----+-----+
QUALLS	STEPHEN
QUIGLEY	TROY
QUINTANILLA	ROGER
YANEZ	LUIS
YEE	MARVIN
YOUNG	CYNTHIA
+-----+-----+
```



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16) Write a query for customer\_id <> 5 AND (amount > 8 OR date(payment\_date) = '2005-08-23')?

Ans.

```
SELECT *
FROM your_table_name
WHERE customer_id <> 5 AND (amount > 8 OR date(payment_date) = '2005-08-23');
```

17) Write a query for customer\_id = 5 AND NOT (amount > 6 OR date(payment\_date) = '2005-06-19')

Ans.

```
SELECT *
FROM your_table_name
WHERE customer_id = 5 AND NOT (amount > 6 OR date(payment_date) = '2005-06-19');
```

18) Construct a query that retrieves all rows from the payments table where the amount is either 1.98, 7.98, or 9.98

Ans.

```
SELECT *
FROM payments
WHERE amount IN (1.98, 7.98, 9.98);
```



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19) Construct a query that finds all customers whose last name contains an A in the second position and a W anywhere after the A.

Ans.

```
SELECT *
FROM customers
WHERE
 last_name LIKE '_A%w%';
```

20) What is join clause?

Ans. Join clause is used to combine two or more rows based on common columns.

41) How many types of Joins are there?

- Ans.
- 1. Inner Join
  - 2. Left join
  - 3. Right join
  - 4. Full outer join
  - 5. Self join